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EXAMINER

TYNAN, MATTHEW

ART UNIT

PAPER NUMBER

2871

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/539,878             | YANAGIDA, TOSHIHARU |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Matthew Tynan          | 2871                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/27/2007</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 6/27/2007 was filed after the mailing date of the first action on the merits on 3/5/2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakao et al. (U.S. 6,088,075).

5. Regarding claim 1, Nakao et al. discloses a light control device comprising: opposing substrates (11a, 11b) with a gap therebetween; a liquid crystal in said gap sealed between said opposing substrates, said liquid crystal being a polymer network liquid crystal; optically transparent electrodes (12a, 12b) on gap-side surfaces of each of said opposing substrates and in contact with said liquid crystal; and the gap between the substrates has a width between about 4 microns and about 11 microns (specifically 10 microns). Therefore, claim 1 is unpatentable.

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6. Regarding claim 3, Nakao et al. discloses the opposing substrates are optically transparent. Therefore, claim 3 is unpatentable.
7. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Asada (JP 2001-209035).
8. Regarding claim 1, Asada discloses a light control device comprising: opposing substrates with a gap therebetween; a liquid crystal in said gap sealed between said opposing substrates, said liquid crystal being a polymer network liquid crystal; optically transparent electrodes on gap-side surfaces of each of said opposing substrates and in contact with said liquid crystal; and the gap between the substrates has a width between about 4 microns and about 11 microns (specifically 7.5 microns; see paragraph [0045]). Therefore, claim 1 is unpatentable.
9. Regarding claim 2, Asada discloses the gap is 7.5 micrometers. Therefore, claim 2 is unpatentable.
10. Regarding claim 3, Asada discloses that the opposing substrates are transparent. Therefore, claim 3 is unpatentable.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. (U.S. 6,088,075).

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13. Regarding claim 2, Nakao et al. does not specify a gap width between about 6 microns and 10 microns. However, the reference does teach the gap should be less than 18 microns, and specifies a thickness of 10 microns. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed.Cir. 1990). See MPEP § 2144.05. The reference also teaches that the thickness can be optimized for switching speed and light scattering. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Therefore, claim 2 is unpatentable.

14. Claims 4-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. (U.S. 6,088,075) in view of Hosoyamada (U.S. Patent No. 6,414,740).

15. Nakao et al. has been discussed above regarding claim 1. Regarding claim 4, Nakao et al. does not teach a temperature detecting section or a pulse control section.

16. However, Hosoyamada discloses: a temperature detecting section (3,4, Fig. 2) which detects the temperature of the liquid crystal element; a pulse control section (5, 7, Fig. 2) which controls the applied voltage for driving said liquid crystal element according to the temperature (col. 6, lines 3-19).

17. Hosoyamada further discloses that the temperature detecting section allows the device to achieve optimal control of the drive voltage in accordance with temperature change and thus stabilize optical characteristics with respect to the temperature change (col. 5, lines 36-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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modify the device taught by Nakao et al. using the temperature detecting device taught by Hosomayada in order to achieve optimal control of the drive voltage in accordance with temperature change and thus stabilize optical characteristics with respect to the temperature change. Therefore, claim 4 is unpatentable.

18. Regarding claim 5, Hosomayada further teaches the applied voltage is an AC pulse voltage (col. 4, lines 65-66). Therefore, claim 5 is unpatentable.

19. Regarding claim 10, the temperature is an environmental temperature. Therefore, Claim 10 is unpatentable.

20. Regarding claim 6, the combination of Nakao et al. and Hosomayada teaches a method for driving a light control device having opposing substrates with a gap therebetween, a liquid crystal in said gap, said liquid crystal being a polymer network liquid crystal, optically transparent electrodes on gap-side surfaces of each said opposing substrates and in contact with the liquid crystal, and the gap between the opposed substrates in an effective optical path being 4-11 microns (see Nakao et al. in re claim 1); wherein said driving method comprises: applying a voltage for driving said liquid crystal element; detecting a temperature of said liquid crystal element; and controlling the applied voltage for driving the liquid crystal element according to the environmental temperature of said liquid crystal element (Hosomayada col. 6, lines 3-19). Therefore, claim 6 is unpatentable.

21. Regarding claim 7, Hosomayada teaches the driving method of a light control device according to claim 6, wherein a temperature detecting section which detects the temperature of said liquid crystal element is provided and said applied voltage is controlled according to the

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environmental temperature detected by said temperature detecting section Hosomayada col. 6, lines 3-19). Therefore, claim 7 is unpatentable.

22. Regarding claim 8, Hosomayada teaches the applied voltage is an AC pulse voltage (col. 4, lines 65-66). Therefore, claim 8 is unpatentable.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. (U.S. 6,088,075) as applied to claims 1-3 and the combination of Nakao et al. and Hosoyamada (U.S. Patent No. 6,414,740) as applied to claims 4-5 above, and further in view of Yanagida et al. (U.S. Pub. No. 2002/0097369).

24. Regarding claim 9, neither Nakao et al. nor Hosomayada teach a light control device disposed in an optical path of an image pickup system.

25. However, Yanagida et al. discloses a light control device (23, Fig. 12) disposed in an optical path of an image pickup system. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the light-control device taught by Nakao et al. or Nakao et al. in view of Hosoyamada in the device disclosed by Yanagida et al., because the PDLC light-control does not require polarizers and thus has a high light-efficiency. Therefore, claim 9 is unpatentable.

### ***Conclusion***

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Tynan whose telephone number is 571-270-1433. The examiner can normally be reached on Mon-Fri. 7:30-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT

  
ANDREW SCHECHTER  
PRIMARY EXAMINER